t28_altcat_4 (TMXsEWjvEAy922mnZy2Tbr8CbDEHdc1f1ts)

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Let $v2\_struct\_0 : \iota \Rightarrow o$ be given. Let $v2\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v11\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v12\_altcat\_1 : \iota \Rightarrow o$ be given. Let $l2\_altcat\_1 : \iota \Rightarrow o$ be given. Let $v15\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_struct\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_altcat\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v18\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v17\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3\_altcat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $v1\_altcat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2\_altcat\_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l2\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1\_altcat\_1 : \iota \Rightarrow o$ be given. Let $l1\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v10\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v13\_functor0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v2\_altcat\_1\ X0) \wedge ((v11\_altcat\_1\ X0) \wedge ((v12\_altcat\_1\ X0) \wedge (l2\_altcat\_1\ X0))))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\neg(k1\_altcat\_1\ X0\ X1\ X2 \neq k1\_xboole\_0) \wedge ((k1\_altcat\_1\ X0\ X2\ X1 \neq k1\_xboole\_0) \wedge (\neg\forall X3.(m1\_subset\_1\ X3\ (k1\_altcat\_1\ X0\ X1\ X2)) \Rightarrow ((v3\_altcat\_3\ X3\ X0\ X1\ X2) \Leftrightarrow ((v1\_altcat\_3\ X3\ X0\ X1\ X2) \wedge (v2\_altcat\_3\ X3\ X0\ X1\ X2)))))))) \tag{1}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v2\_altcat\_1\ X0) \wedge ((v11\_altcat\_1\ X0) \wedge ((v12\_altcat\_1\ X0) \wedge (l2\_altcat\_1\ X0))))) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (u1\_struct\_0\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k1\_altcat\_1\ X0\ X1\ X2)) \Rightarrow ((v3\_altcat\_3\ X3\ X0\ X1\ X2) \Rightarrow ((v1\_altcat\_3\ X3\ X0\ X1\ X2) \wedge (v2\_altcat\_3\ X3\ X0\ X1\ X2))))))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge((v12\_altcat\_1\ X1)\wedge(l2\_altcat\_1\ X1))))\Rightarrow(\forall X2.((v15\_functor0\ X2\ X0\ X1)\wedge(m2\_functor0\ X2\ X0\ X1))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (k1\_altcat\_1\ X0\ X3\ X4))\Rightarrow(((v18\_functor0\ X2\ X0\ X1)\wedge((v17\_functor0\ X2\ X0\ X1)\wedge(v2\_altcat\_3\ (k6\_functor0\ X0\ X1\ X2\ X3\ X4\ X5)\ X1\ (k3\_functor0\ X0\ X1\ X2\ X3)\ (k3\_functor0\ X0\ X1\ X2\ X4))))\Rightarrow((k1\_altcat\_1\ X0\ X3\ X4 = k1\_xboole\_0)\vee((k1\_altcat\_1\ X0\ X4\ X3 = k1\_xboole\_0)\vee(v2\_altcat\_3\ X5\ X0\ X3\ X4)))))))) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge((v12\_altcat\_1\ X1)\wedge(l2\_altcat\_1\ X1))))\Rightarrow(\forall X2.((v15\_functor0\ X2\ X0\ X1)\wedge(m2\_functor0\ X2\ X0\ X1))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (k1\_altcat\_1\ X0\ X3\ X4))\Rightarrow(((v18\_functor0\ X2\ X0\ X1)\wedge((v17\_functor0\ X2\ X0\ X1)\wedge(v1\_altcat\_3\ (k6\_functor0\ X0\ X1\ X2\ X3\ X4\ X5)\ X1\ (k3\_functor0\ X0\ X1\ X2\ X3)\ (k3\_functor0\ X0\ X1\ X2\ X4))))\Rightarrow((k1\_altcat\_1\ X0\ X3\ X4 = k1\_xboole\_0)\vee((k1\_altcat\_1\ X0\ X4\ X3 = k1\_xboole\_0)\vee(v1\_altcat\_3\ X5\ X0\ X3\ X4)))))))) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0))))\wedge((\neg v2\_struct\_0\ X1)\wedge((v12\_altcat\_1\ X1)\wedge(l2\_altcat\_1\ X1))))\Rightarrow(\forall X2.(m2\_functor0\ X2\ X0\ X1)\Rightarrow(l2\_functor0\ X2\ X0\ X1)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.((l1\_altcat\_1\ X0)\wedge(l1\_altcat\_1\ X1))\Rightarrow(\forall X2.(l2\_functor0\ X2\ X0\ X1)\Rightarrow(l1\_functor0\ X2\ X0\ X1)) \tag{6}$$

Assume the following.

$$\forall X0.(l2\_altcat\_1\ X0)\Rightarrow(l1\_altcat\_1\ X0) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.\forall X5.\ (((\neg v2\_struct\_0\ X0)\wedge(l1\_altcat\_1\ X0))\wedge(((\neg v2\_struct\_0\ X1)\wedge(l1\_altcat\_1\ X1))\wedge(((v10\_functor0\ X2\ X0\ X1)\wedge(l2\_functor0\ X2\ X0\ X1))\wedge((m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\wedge((m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\wedge(m1\_subset\_1\ X5\ (k1\_altcat\_1\ X0\ X3\ X4)))))))\Rightarrow(m1\_subset\_1\ (k6\_functor0\ X0\ X1\ X2\ X3\ X4\ X5)\ (k1\_altcat\_1\ X1\ (k3\_functor0\ X0\ X1\ X2\ X3)\ (k3\_functor0\ X0\ X1\ X2\ X4))) \tag{8}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2\_struct\_0\ X0)\wedge(l1\_altcat\_1\ X0))\wedge(((\neg v2\_struct\_0\ X1)\wedge(l1\_altcat\_1\ X1))\wedge((l1\_functor0\ X2\ X0\ X1)\wedge(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0)))))\Rightarrow(m1\_subset\_1\ (k3\_functor0\ X0\ X1\ X2\ X3)\ (u1\_struct\_0\ X1)) \tag{9}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0))))\wedge((\neg v2\_struct\_0\ X1)\wedge((v12\_altcat\_1\ X1)\wedge(l2\_altcat\_1\ X1))))\Rightarrow(\forall X2.(m2\_functor0\ X2\ X0\ X1)\Rightarrow((v15\_functor0\ X2\ X0\ X1)\Rightarrow((v10\_functor0\ X2\ X0\ X1)\wedge(v13\_functor0\ X2\ X0\ X1)))) \tag{10}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v2\_altcat\_1\ X0)\wedge((v11\_altcat\_1\ X0)\wedge((v12\_altcat\_1\ X0)\wedge(l2\_altcat\_1\ X0)))))\Rightarrow(\forall X1.((\neg v2\_struct\_0\ X1)\wedge((v2\_altcat\_1\ X1)\wedge((v11\_altcat\_1\ X1)\wedge((v12\_altcat\_1\ X1)\wedge(l2\_altcat\_1\ X1)))))\Rightarrow(\forall X2.((v15\_functor0\ X2\ X0\ X1)\wedge(m2\_functor0\ X2\ X0\ X1))\Rightarrow(\forall X3.(m1\_subset\_1\ X3\ (u1\_struct\_0\ X0))\Rightarrow(\forall X4.(m1\_subset\_1\ X4\ (u1\_struct\_0\ X0))\Rightarrow(\forall X5.(m1\_subset\_1\ X5\ (k1\_altcat\_1\ X0\ X3\ X4))\Rightarrow(((v18\_functor0\ X2\ X0\ X1)\wedge((v17\_functor0\ X2\ X0\ X1)\wedge(v3\_altcat\_3\ (k6\_functor0\ X0\ X1\ X2\ X3\ X4\ X5)\ X1\ (k3\_functor0\ X0\ X1\ X2\ X3)\ (k3\_functor0\ X0\ X1\ X2\ X4))))\Rightarrow((k1\_altcat\_1\ X0\ X3\ X4 = k1\_xboole\_0)\vee((k1\_altcat\_1\ X0\ X4\ X3 = k1\_xboole\_0)\vee(v3\_altcat\_3\ X5\ X0\ X3\ X4)))))))))$$